From: Linda Watson
To: ATb, ARL, BXU
Date: 3/28/96 11:24am
Subject: St. Lucie IA No.

I got the IA number (IA 96-019) for the operator involved in the ST. Lucie dilution issue and put it in the package. Both documents are still in Ebneter's office. Hellan said she mentioned them to him before Current Events. I have revised the letters to include date and "signed by" notes and a printout is on my desk for the final version. When I called Dawn, she indicated we needed an EA number for the operator. This is not what Joe Gray said last week. He indicated no EA number would be used. Only the IA number. Dawn will call us if a separate EA number is pulled for the operator.

U.S. Nuclear Regulatory Commission
Region II
101 Marietta St., N.W.
Suite 2900
Atlanta, GA 30323

96E003

No: II-96-36
Contact: Ken Clark (404) 331-5503
Roger Hannah (404) 331-7878

FOR IMMEDIATE RELEASE
(Friday, March 29, 1996)

NRC STAFF PROPOSES $50,000 CIVIL PENALTY AGAINST ST. LUCIE NUCLEAR POWER PLANT

The Nuclear Regulatory Commission staff has proposed a $50,000 civil penalty against Florida Power & Light Company for alleged violation of NRC safety requirements at the St. Lucie nuclear power plant, located on Hutchinson Island near Ft. Pierce, Florida.

NRC officials said the fine is being proposed because a Unit 1 control room operator on January 22, 1996 failed to follow procedures for diluting the boron concentration in the reactor coolant system, causing reactor power to rise above authorized limits for a short period of time.

Boron is used in reactors to absorb neutrons and help control the fission process. As reactor fuel ages, boron concentrations are diluted to help maintain operating power levels.

The NRC said the operator was diluting reactor coolant in a procedure requiring the addition of from 25 to 40 gallons of water which should have taken less than a minute to perform. Instead, the operator and other crew members conducted an inadequate watch turnover during which a temporary relief operator and the senior reactor operator were unaware that a boron dilution was in progress. This resulted in an unplanned reactivity increase since the operator failed to stop the addition of primary makeup water until approximately 400 gallons were added.

NRC officials said the actual safety consequences of the event were low because the operator recognized the error, and the crew took prompt actions to restore plant parameters. However, they said the event demonstrated operator performance problems because (1) the method routinely used by St. Lucie operators to dilute reactor coolant was not authorized by procedures; (2) the method used was not as described in an updated plant Final Safety Analysis Report; (3) operators routinely performed the dilution procedure from memory instead of referring to written procedures as required; and (4) operators failed to give prompt verbal notification to the Operations Supervisor that an unplanned reactivity change had occurred.

The company has 30 days from receipt of the Notice of Violation to either pay the fine or to protest its imposition.

#

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b. Inadequate design control, in that Unit 1 procedures for adding a mixture of demineralized water and boric acid to the reactor coolant system (in manual and directly to the suction of the charging pumps) did not implement the procedure as stated in the FSAR, Chapter 15 (in automatic and to the VCT) and had not done so since before Unit 1 was licensed.

c. Inadequate 10 CFR 50.59 evaluation, in that the licensee made a change to the Unit 1 dilution procedure on January 23, 1996 (after the event), to allow adding pure demineralized water in manual and directly to the suction of the charging pumps, that was different from the procedure as stated in the FSAR, Chapter 15 (in automatic and to the VCT) without a 10 CFR 50.59 safety evaluation.

Part 55 Licensees: No official enforcement action, but the NRC will ask the licensee to bring three licensed operators from the event (the NPS, board RO, and desk RO) to the enforcement conference with the utility. Also, the staff is considering sending letters to the three operators expressing NRC concern with their actions.

3. Special Inspection and FSAR Review

Region II was notified of this event at approximately 10:00 a.m. on Monday, January 22, when the licensee delivered a copy of the In-House Event Report to the NRC resident inspector. At the time, RII had an ongoing corrective action program inspection at the site including region based inspectors R. Schin, M. Thomas, and L. Moore. On Thursday, January 25, RII management organized a special event followup inspection to begin on Friday, January 26, and continue through the weekend until completed. The special inspection included lead inspector R. Schin plus Turkey Point resident inspector B. Desai and St. Lucie acting resident inspector S. Sandin. The special inspection exit interview was conducted at 10:00 a.m. on Tuesday, January 30.

The inspectors included FSAR review in the inspection plan, and B. Desai's review of the FSAR identified that the licensee's operating procedures for boron dilution were not consistent with the FSAR Chapter 15 accident analysis procedure for boron dilution. Further review of this issue resulted in proposed violations b. and c. above. At the exit interview, the licensee had seven dissenting comments to this finding.

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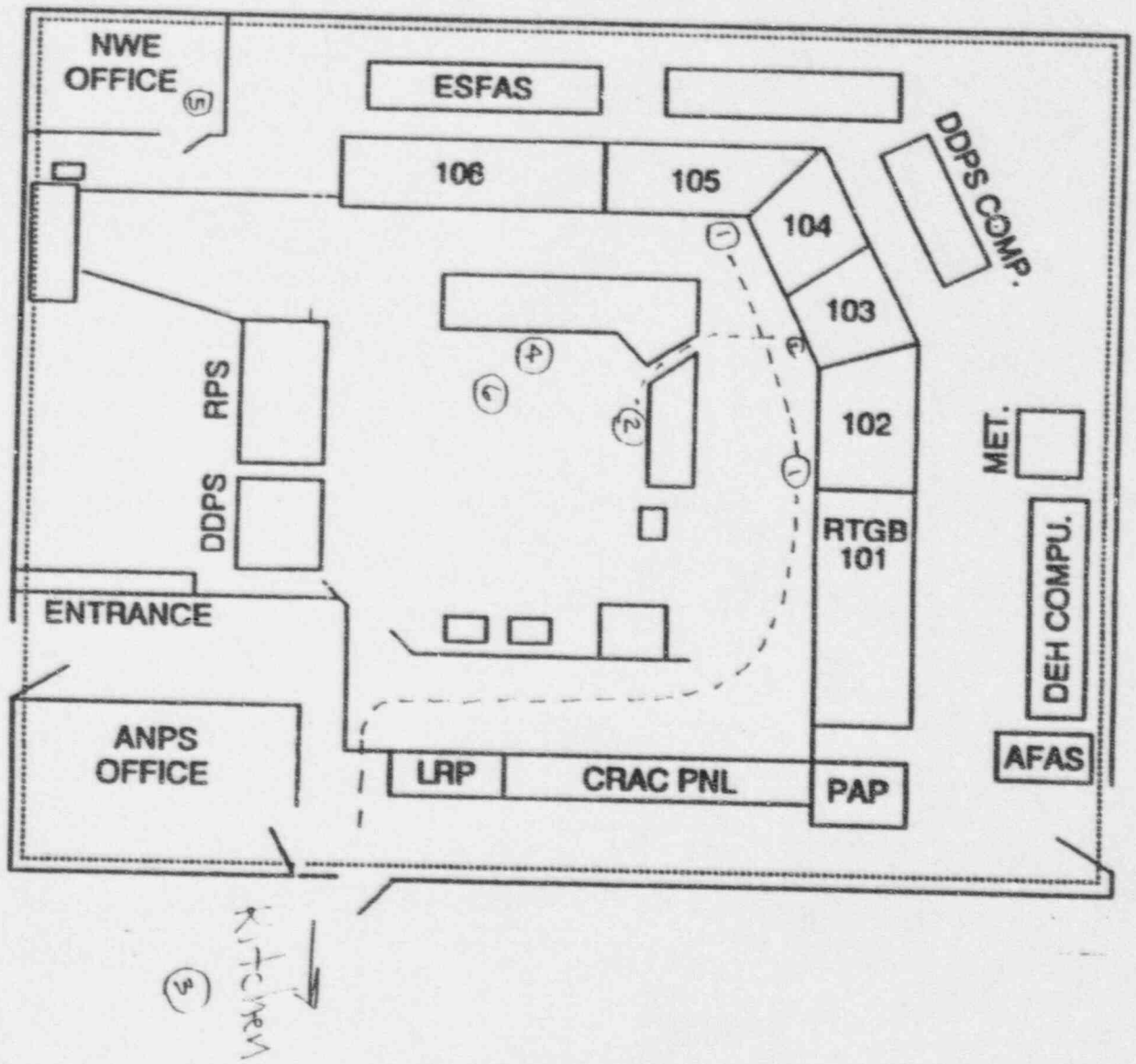
ST. LUCIE PLANT
ADMINISTRATIVE PROCEDURE NO. 0010120, REVISION 79
CONDUCT OF OPERATIONS

FIGURE 3

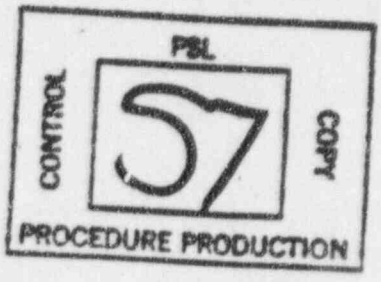


FLORIDA POWER & LIGHT COMPANY

DOCKET NO. 50-335

ST. LUCIE PLANT UNIT NO. 1

FACILITY OPERATING LICENSE



1. The Nuclear Regulatory Commission (the Commission) having found that:

   A. The application for license filed by Florida Power & Light Company (the licensee) complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commissions's rules and regulations set forth in 10 CFR Chapter 1 and all required notifications to other agencies or bodies have been duly made;

   B. Construction of the St. Lucie Plant, Unit No. 1 (facility) has been substantially completed in conformity with Construction Permit No. CPPR-74 and the application, as amended, the provisions of the Act and the rules and regulations of the Commission;

   C. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission;

   D. There is reasonable assurance: (i) that the activities authorized by this operating license can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the rules and regulations of the Commission;

   E. The licensee is technically and financially qualified to engage in the activities authorized by this operating license in accordance with the rules and regulations of the Commission;

   F. The licensee has satisfied the applicable provisions of 10 CFR Part 140, "Financial Protection Requirements and Indemnity Agreements," of the Commission's regulations;

   G. The issuance of this operating license will not be inimical to the common defense and security or to the health and safety of the public;

DOD/2

(3) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess and use at any time byproduct, source and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

(4) Pursuant to the Act, and 10 CFR Parts 30, 40, and 70, to receive, possess and use in amounts as required any byproduct source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components;

(5) Pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Sections 30.34 of Part 30, Section 40.41 of Part 40, Section 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below;

(1) Maximum Power Level

The licensee is authorized to operate the facility at steady state reactor core power levels not in excess of 2700 megawatts (thermal), provided that the construction items, preoperational tests, startup tests, and other items identified in Enclosure 1 to this license have been completed as specified in Enclosure 1. Enclosure 1 is an integral part of, and is hereby incorporated in this license.

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 134 are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

RATED THERMAL POWER

1.25 RATED THERMAL POWER shall be a total reactor core heat transfer rate to the reactor coolant of 2700 MWt.

REACTOR TRIP SYSTEM RESPONSE TIME

1.26 The REACTOR TRIP SYSTEM RESPONSE TIME shall be the time interval from when the monitored parameter exceeds its trip setpoint at the channel sensor until electrical power is interrupted to the CEA drive mechanism.

REPORTABLE EVENT

1.27 A REPORTABLE EVENT shall be any of those conditions specified in Section 50.73 to 10 CFR Part 50.

SHIELD BUILDING INTEGRITY

1.28 SHIELD BUILDING INTEGRITY shall exist when:

a. Each door is closed except when the access opening is being used for normal transit entry and exit;

b. The shield building ventilation system is in compliance with Specification 3.6.6.1, and

c. The sealing mechanism associated with each penetration (e.g., welds, bellows or O-rings) is OPERABLE.

SHUTDOWN MARGIN

1.29 SHUTDOWN MARGIN shall be the instantaneous amount of reactivity by which the reactor is subcritical or would be subcritical from its present condition assuming all full-length control element assemblies (shutdown and regulating) are fully inserted except for the single assembly of highest reactivity worth which is assumed to be fully withdrawn.

SITE BOUNDARY

1.30 Site Boundary means that line beyond which the land or property is not owned, leased, or otherwise controlled by the licensee.

SOURCE CHECK

1.31 A SOURCE CHECK shall be the qualitative assessment of channel response when the channel sensor is exposed to a radioactive source.

STAGGERED TEST BASIS

1.32 A STAGGERED TEST BASIS shall consist of:

a. A test schedule for n systems, subsystems, trains or other designated components obtained by dividing the specified test interval into n equal subintervals, and

b. The testing of one system, subsystem, train or other designated component at the beginning of each subinterval.

THERMAL POWER

1.33 THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.

UNIDENTIFIED LEAKAGE

1.34 UNIDENTIFIED LEAKAGE shall be all leakage which is not IDENTIFIED LEAKAGE or CONTROLLED LEAKAGE.

UNRESTRICTED AREA

1.35 Unrestricted area means an area, access to which is neither limited nor controlled by the licensee.

UNRODDED INTEGRATED RADIAL PEAKING FACTOR - F_r

1.36 The UNRODDED INTEGRATED RADIAL PEAKING FACTOR is the ratio of the peak pin power to the average pin power in an unrodded core, excluding tilt.

15.2.4 CHEMICAL AND VOLUME CONTROL SYSTEM MALFUNCTION - BORON DILUTION EVENT

15.2.4.1 Identification of Causes

The chemical and volume control system (CVCS) described in Section 9.3.4 regulates both the chemistry and the quantity of coolant in the reactor coolant system. Changing the boron concentration in the reactor coolant system is a part of normal plant operation, compensating for long-term reactivity effects, such as fuel burnup, xenon buildup and decay, and plant startup and cooldown. For refueling operations, borated water is supplied from the refueling water tank, which assures adequate shutdown margin. An inadvertent boron dilution in any operational mode adds positive reactivity, produces power and possibly temperature increases, and, in Modes 1 and 2 (startup and power operations) can cause an approach to both the DNBR and CTM limits.

Boron dilution is conducted under strict administrative procedures which specify permissible limits on the rate and magnitude of any required change in boron concentration. Boron concentration in the reactor coolant system can be decreased either by controlled addition of unborated makeup water with a corresponding removal of reactor coolant (feed and bleed) or by using the deborating ion exchanger. The deborating ion exchanger is normally used for boron removal when the boron concentration is low (<ppm) and the feed-and-bleed method becomes inefficient. A boronometer is located in a line upstream of the deborating and purification ion exchangers in the CVCS. This instrument provides a continuous measure of boron concentration and high-low boron concentration alarms.

During normal operation, concentrated boric acid solution is mixed with demineralized makeup water to the concentration required for proper plant operation and is automatically introduced into the volume control tank in response to a low water level signal from the volume control. To effect boron dilution, the makeup controller mode selector switch must be set to "Dilute" and the demineralized water batch quantity selector set to the desired quantity. When the specific amount has been injected, the demineralizer water control valve is shut automatically.

Dilution of the reactor coolant can be terminated by isolation of the makeup water system, by stopping either the makeup water pumps or the charging pumps, or by closing the charging isolation valves. A charging pump must be running in addition to a makeup water pump for boron dilution to take place.

The CVCS is equipped with the following indications and alarm functions, which will inform the reactor operator when a change in boron concentration in the reactor coolant system may be occurring:

a) Boronometer high and low alarms and concentration indication

b) Volume control tank level indication and high and low alarms

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c) Makeup flow indication and alarms

d) Volume control tank isolation.

Changes in boron concentration while the reactor is on automatic control at full power are compensated for by repositioning the CEA's. However, to assist the reactor operator in maintaining an adequate shutdown margin, CEA insertion below a position that would provide a minimum of one percent shutdown margin (assuming one stuck CEA) is accompanied by control room alarms. Because of the procedures involved and the numerous alarms and indications available to the operator, the probability of a sustained or erroneous dilution is very low.

15.2.4.2 Analysis of Effects and Consequences

15.2.4.2.1 Method of Analysis

The time required to achieve criticality from a subcritical condition due to boron dilution is based on the initial and critical boron concentrations, the boron reactivity worth, and the rate of dilution. Reactivity increase rates due to boron dilution are based on the boron worth and the dilution rate.

Cases have been analyzed for all six operational modes, i.e., power operation, startup, hot standby, hot shutdown, cold shutdown, and refueling.* In each case, it is assumed that the boron dilution results from pumping unborated demineralized water into the reactor coolant system at the maximum possible rate of 132 gpm (3 x 44 gpm per charging pump) and that the boron concentrations are uniform at all times.

The boron dilution rate is calculated by CESEC for all cases except dilution during refueling. CESEC described in Section 15.1.4-1 divides the reactor coolant system into 15 control volumes with the continuity equation being satisfied by all nodes. The charging rate of non-borated water and the boron content of the system are inputs to CESEC. The maximum dilution rate (10.5 ppm/minute) occurs at the initiation of the transient. For dilution during refueling the reactor coolant system is assumed to be one control volume with the boron concentration calculated by: the time rate of change of boron equals flow in times the boron concentration minus flow out times boron concentration.

The uniformity of the boron concentration can be assured for the different modes of operation as follows:

a) During refueling

Prior to cooldown, the reactor coolant system boron concentration is increased to a minimum of 1720 ppm. The boron is mixed by the reactor coolant system pumps. Because the boron is chemically dissolved in the reactor coolant, it will not precipitate. The only possible means of obtaining a nonuniform solution is by the addition of demineralized water via the charging pumps. However, because the maximum water

* An additional boron dilution event would be via the Iodine Removal System (NaOH spray additive). This event is not governing, however. See Reference 42.

FLORIDA POWER & LIGHT COMPANY
ST. LUCIE PLANT
ADMINISTRATIVE PROCEDURE NO. 0010120
REVISION 79

1.0 TITLE:

CONDUCT OF OPERATIONS

2.0 REVIEW AND APPROVAL:

Reviewed by Plant Nuclear Safety Committee 1/17 1975

Approved by J. H. Barrow (for) Plant General Manager 1/22 1975

Revision 79 Reviewed by Facility Review Group 12/21 1995

Approved by J. Scarola Plant General Manager 12/21 1995

3.0 SCOPE:

3.1 Purpose:

This procedure defines the responsibilities and conduct of the Operations Department during the performance and documentation of all departmental activities. This procedure provides instruction to ensure that plant operations are conducted in an effective, consistent, professional and businesslike manner as per the operating license, plant procedures and applicable regulatory requirements.

This procedure applies to all persons in the Operations Department. It identifies operational requirements and management policies necessary to ensure the daily conduct of plant operations is consistent with good operational and engineering practices.

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APPENDIX D
CREW RELIEF/SHIFT TURNOVER
(Page 5 of 5)

1. (continued)

D. Instruction for an Interim or Short Term Relief/Shift Turnover.

1. If a specific watchstander requires a short term relief for a period of less than 2 hours, then the following instructions provide the minimum requirements for shift relief:

a. General watchstation status.

b. Off-normal conditions.

c. Tests in progress.

2. The applicable unit ANPS shall be notified immediately after the shift turnover has been completed.

3. If an individual is expected to be absent for period of greater than 2 hours, then an Individual Relief/Split-Shift Turnover shall be performed.

APPENDIX E
NOTIFICATION OF OPERATIONS SUPERVISOR/FPL MANAGEMENT
(Page 1 of 3)

1. The Nuclear Plant Supervisor is responsible for notifying higher station authorities and appropriate station personnel. Advance notification should be made when possible. The following situations require prompt, verbal notifications:

   Notify the Operations Supervisor for the following situations:

   A. Any event that would cause entry into an Emergency Operating Procedure (EOP).

   B. Any event requiring phone call notification to the NRC.

   C. Any event that will generate an LER.

   D. Inadvertent radioactive liquid or gaseous release.

   E. Major equipment failure or malfunctions.

   F. Unexplained or unplanned reactivity changes.

   G. Forced power reduction.

   H. Major personnel injury or radiation overexposure.

   I. Any LCO that would require unit shutdown within the next 24 hours.

   J. Any operational event that generates an In House Event (IHE) Report AND causes heightened awareness to FPL sources offsite.

   K. Any release that is or is potentially, damaging to the environment.

   L. Load restrictions or inability to meet load dispatcher requirements. This includes, but is NOT limited to the following:

      1. A planned power escalation is unexpectedly halted for <u>any</u> reason and can not be resumed within one hour.

      2. If at a power level less than 100 percent, any unexpected condition that would prevent a future power escalation and can not be resolved within two hours.

      3. If at a power level less than 100 percent and the plant is unable to support an unexpected request for more power from the load dispatcher.

ST. LUCIE PLANT
ADMINISTRATIVE PROCEDURE NO. 0010120, REVISION 79
CONDUCT OF OPERATIONS

APPENDIX F
LOG KEEPING
(Page 2 of 9)

2. Chronological Logs:

A. Log books and/or computerized logs shall be maintained at the RCO, NO/SNPO, NTO/NPO and ANPO normal stations. Entries are to be in concise and complete enough to reconstruct the events of the shift. Particular attention should be made to the entries pertaining to any abnormal condition that occurs. Times for each entry shall be as near correct as possible using military time. The entries are to be made in chronological order.

1. Evolutions, manipulations and operations that are performed, observed and monitored by operators NOT actively assuming the responsibilities of a particular watch station shall be recorded in the applicable watch station chronological log and initialed by that operator. The operator should notify the responsible watchstander of the log entry.

2. When it is necessary to insert additional information after the fact, Then the entry shall be recorded with the actual time of occurrence, the words Late Entry in parenthesis, and the information to be logged.

Example:	1234	Started the 1A EDG for surveillance run
	0827	(Late Entry) Filled the 1A2 SIT with the 1B HPSI Pump in accordance with OP 1-0410021
	1345	Secured the 1A EDG. Surveillance run SAT.

3. When it is necessary to correct information recorded in error, then the entry shall be recorded with the actual time of occurrence, the words "Corrected Entry" in parenthesis, and the information to be logged.

Example:	1234	Started the 1B EDG for surveillance run
	1345	Secured the 1A EDG. Surveillance run SAT.
	1234	(Corrected Entry) Started the 1A EDG for surveillance run

4. Entries in the RCO log should include, but are NOT to be limited to, the following:

a. Conditions at the beginning of each watch.

APPENDIX F
LOG KEEPING
(Page 3 of 9)

2. Chronological Logs: (continued)

A. (continued)

4. (continued)

b. Significant changes in plant conditions.

Examples: 1. Mode changes.

2. Load changes.

3. Reactivity changes.

4. Startups and Shutdown.

5. Time of Reactor criticality.

c. Any new condition that would limit unit generation.

Examples: 1. Condenser back pressure at administrative limits.

2. Chemistry parameters limiting operation.

d. Special tests, including periodic and surveillance testing, for major equipment.

Examples: 1. Start and stop times for periodic or surveillance tests and outcome (SAT or UNSAT), for major equipment.

2. Post maintenance testing and outcome, for major equipment.

e. Control problems associated with major equipment or systems.

Examples: 1. Changes in plant work arounds.

ST. LUCIE PLANT
ADMINISTRATIVE PROCEDURE NO. 0010120, REVISION 79
CONDUCT OF OPERATIONS

APPENDIX M
PROCEDURAL COMPLIANCE AND IMPLEMENTATION
(Page 1 of 6)

1. Controlled procedures are available in both Control Rooms and shall be implemented and complied with in accordance with the instructions provided in QI 5-PR/PSL-1, "Preparation, Revision, Review/Approval of Procedures."

2. In the event of an emergency where procedural guidance does NOT exist or in which a specific emergency is NOT addressed by an approved procedure, then Operations personnel shall take action to protect the health and safety of the public, minimize personnel injury, and damage to the facility.

3. Numerous tasks performed by the operators are repetitive and routine in nature. These tasks come under the guidance of the memorization method of adherence to procedures in accordance with QI 5-PR/PSL-1, "Preparation, Revision, Review/Approval of Procedures," and may be performed from memory. These tasks, which are listed in the following sections, are considered to be skill of the trade for qualified operators. Each listed task shall have one or more of the below justification reasons:

   (A) Task is routine and not complex - satisfactory completion assured by routine training and observation.

   (B) Task is routine and has a low level of complexity - satisfactory completion assured by completion of verification checklist and independent verification.

   (C) Posted instructions in place as reference.

   (D) Satisfactory completion assured by multiple levels of review and/or feedback from system.

A. **General Control Tasks**

   1. Racking IN and OUT of 6.9 KV, 4.16 KV, and 480V breakers. **(B)**

   2. Turning ON and OFF 480V MCC breakers. **(D)**

   3. Writing clearances and NPWOs. **(A,D)**

   4. Changing chart paper. **(A,D)**

   5. Placing controllers in MANUAL or AUTO. **(A,D)**

ST. LUCIE PLANT
ADMINISTRATIVE PROCEDURE NO. 0010120, REVISION 79
CONDUCT OF OPERATIONS

APPENDIX M
PROCEDURAL COMPLIANCE AND IMPLEMENTATION
(Page 2 of 6)

1. (continued)

B. **Reactor Control Operator**

1. Divert Letdown to Control VCT level. **(A,D)**
2. Check Sheet 1 of AP 1-0010125. **(A,B,D)**
3. Refueling Operations - movement of machine, etc. **(A,D)**
4. Adjusting Main Generator loading, including Megavars and Megawatts (manipulation of DEH controls). **(D)**
5. Swapping Auxiliary and Start-up Transformers. **(D)**
6. Adjusting CEA position (eg. ASI control). **(D)**
7. Manipulation of control valves (ADVs, FCVs) to control Heatup and Cooldown rates. **(D)**
8. Pumping down Reactor Drain Tank. **(A,D)**
9. Placing CST on recirc. **(A,D)**

C. **Senior Nuclear Plant Operator**

1. Generic Rounds Sheets. **(A)**
2. Swapping HUTs. **(A,D)**
3. Blowing down BAMT level transmitters. **(C)**
4. Operator Readings and AP 0010125 checks. **(A,B,D)**
5. Recirculating of HUTs, WMTs, and AWSTs. **(A,D)**
6. Backwashing ICW/CCW strainers. **(C)**

FIGURE 4
TEMPORARY CHANGE REQUEST
(Page 1 of 3)

A

Reference Information: (**Originator** to complete)

St. Lucie Unit # COMMON TC # 0-96-014

Procedure Title: CONDUCT OF OPERATIONS

Procedure Number: AP 0010120 Rev. 79

Reason for change: INCORPORATE MANAGEMENT DIRECTIVES

THIS TC SUPERCEDES TC 0-96-011

Originator: CZACHOR Phone: 7091 Date: 1/29/96

B

Procedural Controls: (**Originator** to complete)

Yes	No	
☐	☒	Is the intent of the procedure altered? (Tech. Spec. 6.8.3.A) If yes, a TC is NOT applicable. A PCR is required.
☐	☒	Is this Temporary Change for a one-time use? If yes, this TC can be executed one time only. If no, this TC may be used up to 90 days, and the originator of the TC shall submit a procedure change request incorporating this TC at the same time the TC is approved.

Department Head or Designee [signature] 1/29/96

☐	☒	Is this T.C. for a Q.I.? If yes, the Quality Manager or designee and the Dept. Head or designee who is jurisdictionally responsible for the Q.I. shall sign.

Quality Manager or Designee _____ ___/___/___

Department Head or Designee _____ ___/___/___

C

Temporary Change Contents: (**Originator** to complete)

Does this Change:

Yes	No	
☐	☒	Incorporate complex or extensive changes? If Yes, Subcommittee required. _____ Subcommittee Initials
☐	☒	Modify instrument setpoints?
☐	☒	Delete an independent verification?
☐	☒	Alter a QC holdpoint?
☐	☒	Modify a procedural step which alters a regulatory requirement as identified in the procedure?
☐	☒	Alter the first execution of a procedure? (Preop, LOI)
☐	☒	Addition of any chemicals?

NOTE
If any of the above criteria are marked yes, prior FRG review is required.

/RE

FIGURE 4
TEMPORARY CHANGE REQUEST
(Page 2 of 3)

TC # 0-96-014

D

10 CFR 50.59 Screening

		Yes	No
1.	Does the change represent a change to the facility as described in the SAR?	___	✓
2.	Does the change represent a change to procedures as described in the SAR?	___	✓
3.	Is the change associated with a test or experiment not described in the SAR?	___	✓
4.	Could the change affect nuclear safety in a way not previously evaluated in the SAR?	___	✓
5.	Does the change require a change to the Technical Specifications?	___	✓

NOTE
If the answer to ALL the above 10 CFR 50.59 screening questions are no. (Questions 1 - 5), then a safety evaluation is not required.

STA review (signature) [signature] Date 1/29/96

E

Does this change: (NPS to complete)

		Yes	No
1.	Compromise the separation of redundant trains of equipment?	___	✓
2.	Potentially isolate pressure reliefs?	___	✓
3.	Defeat automatic signals?	___	✓
4.	Defeat mechanical or electrical interlocks?	___	✓
5.	Alter the completion of an evolution due to an operator work around.	___	✓

If yes to No. 5, authorization from the Plant General Manager or Site Vice President shall be obtained.

_____ Date ___/___/___

Yes	No	
☐	☒	Prior FRG review required?

NOTE
If any of the above criteria are marked yes, discuss possible alternatives with the originator.

NPS Signature [signature] Date 1/29/96

F

FRG Review:

Plant General Manager Approval _____ Date ___/___/___

FRG Number _____:_____ This change shall be reviewed (if prior FRG review is not required) by the Facility Review Group and approved by the Plant General Manager within 14 days of the authorization date. (Tech. Spec. 6.8.3.C)

REJECTED by FRG/Plant General Manager _____ Date ___/___/___

Reason: _____

Return to Originator _____

It is the responsibility of the originator of the rejected temporary change to cancel the change in the appropriate Control Room, destroy all field copies and halt all subsequent evolutions using this temporary change.

FIGURE 4
TEMPORARY CHANGE REQUEST
(Page 3 of 3)

G

TC # 0-96-014

Approval: (This change shall have prior approval by a **NPS** and one member of the **plant management staff.**) (Tech. Spec. 6.8.3.B)

Plant Management Staff Signature _____ Date 1/29/96

NPS Signature _____ Authorization Date 1/29/96

H

Cancellation Authorization _____ **(NPS/ANPS)** Date ____/____/____

Reason: _____

ST. LUCIE PLANT
ADMINISTRATIVE PROCEDURE NO. 0010120, REVISION 79
CONDUCT OF OPERATIONS

APPENDIX B
SHIFT OPERATIONS POLICIES
(Page 5 of 8)

4. (continued)

A. (continued)

4. P - Prove

a. Prove to yourself that the actions that were just performed produced the desired results.

b. Observe and verify the following:

1. The task was performed correctly.

2. The actual response was the expected response.

3. The component/system is in the proper configuration to support the intended operation.

4. The proper component was operated.

5. RTGB Manipulation

A. Only licensed operators are permitted to manipulate the controls that directly affect the reactivity or power level of a reactor except for training purposes. A trainee may manipulate controls only under direct visual supervision of a licensed operator.

6. Unit Reliability

A. The NPS/ANPS should make every effort to prevent putting the plant in a situation where a single failure would jeopardize plant safety or availability.

Systems listed under AP 0010142, "Unit Reliability - Manipulation of Sensitive Systems" warrant particular attention.

Maintenance or testing should not be allowed on an in-service train or channel with the opposite train out-of-service or another channel in Trip, except for Tech. Spec. required surveillances or to prevent a plant shutdown.

TC C-96-014

APPENDIX B
SHIFT OPERATIONS POLICIES

5. Reactivity Manipulations

A. Reactivity manipulations in the course of normal plant operations is defined as the insertion of positive and negative reactivity due to manipulation of the following:

1. CEA insertion and withdrawal.

2. Addition of water and/or boric acid to the VCT or Charging Pumps' suction.

3. Turbine/Generator load changes.

4. Placing a purification Ion Exchanger in service, (any time V2520, "Ion Exchanger Bypass Valve," position is changed from bypassing the ion exchanger(s) to directing flow through the ion exchanger(s)).

B. All reactivity manipulations in the course of normal plant operations, both positive and negative, shall have prior approval from the SRO fulfilling the role of the Control Room Command function, except as provided for in step 5.D.

C. When reactivity manipulations are being performed, both positive and negative, the SRO fulfilling the role of the Control Room Command function shall directly supervise the manipulation and additionally assume the role of a reactivity manager, except as provided for in step 5.D.

D. In the event of off-normal and emergency conditions, Reactor Control Operators are authorized to perform reactivity manipulations without the presence of and approval of an SRO, if in his/her judgement immediate intervention is required to protect the health and safety of the public and/or challenging of plant safety functions. The SRO fulfilling the role of the Control Room Command function shall be notified of the manipulation as soon as possible.

E. Crew Relief/Shift Turnover shall NOT take place for Reactor Control Operators or the Assistant Nuclear Plant Supervisor while reactivity manipulations are in progress.

TC 0-96-014

APPENDIX B
SHIFT OPERATIONS POLICIES

5. (Continued)

F. Reactivity manipulations shall be performed only by those individuals possessing an active license applicable to the unit on which the manipulation is being performed. The only exceptions are persons reactivating a license or in a bonafide training role in pursuit of obtaining a license; they may perform reactivity manipulations under direct visual supervision of a licensed operator with an active license.

ST. LUCIE PLANT
ADMINISTRATIVE PROCEDURE NO. 0010120, REVISION 79
CONDUCT OF OPERATIONS

APPENDIX D
CREW RELIEF/SHIFT TURNOVER
(Page 4 of 5)

1. (continued)

C. Instructions for an Individual Relief/Split-Shift Turnover

1. If a specific watchstation shift is being split by two individual watchstanders, then the following instructions provide the minimum requirements for shift relief:

a. The off-going watchstander shall review applicable plant log sheets to determine the existence of any off-normal condition or trends.

b. The off-going watchstander shall complete the applicable Turnover Check Sheet (Data Sheet 1) for their watchstation.

c. The off-going watchstander shall verbally transmit and explain the information as recorded on their applicable Turnover Check Sheet (Data Sheet 1) to the on-coming watchstander.

d. The on-coming watchstander shall review the following and acknowledge that review by initialing Check Sheet 1 of AP 1(2)-0010125, "Schedule of Periodic Test, Checks, and Calibrations."

1. Applicable Watchstation Chronological Log.

2. Applicable Watchstation Operator Log Readings.

3. Night Order Book.

4. NPWO, ANPS, and NWE shall review equipment out-of-service log.

e. The applicable unit ANPS shall be notified immediately after the shift turnover has been completed.

TC 0-96-014

APPENDIX D
CREW RELIEF/SHIFT TURNOVER

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d. On-coming and off-going control room watchstanders shall conduct a face-to-face complete walkdown of the RTGBs and control panels.

e. The on-coming watchstander shall make a chronological log entry indicating he/she has assumed the responsibilities of the watchstation.

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APPENDIX D
CREW RELIEF/SHIFT TURNOVER
(Page 5 of 5)

1. (continued)

D. Instruction for an Interim or Short Term Relief/Shift Turnover.

1. If a specific watchstander requires a short term relief for a period of less than 2 hours, then the following instructions provide the minimum requirements for shift relief:

a. General watchstation status.

b. Off-normal conditions.

c. Tests in progress.

2. The applicable unit ANPS shall be notified immediately after the shift turnover has been completed.

3. If an individual is expected to be absent for period of greater than 2 hours, then an Individual Relief/Split-Shift Turnover shall be performed.

TC 0-96-014

APPENDIX D
CREW RELIEF/SHIFT TURNOVER

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D.

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d. Control room watchstanders with the responsibility of the Operator at the Controls or the Control Room Command function shall conduct a face-to-face complete walkdown of the RTGBs and control panels with the individual assuming their responsibility.

FLORIDA POWER & LIGHT COMPANY
NUCLEAR ENERGY DEPARTMENT
ST. LUCIE PLANT

PREPARATION, REVISION, REVIEW/APPROVAL OF PROCEDURES

1.0 APPROVAL:

Reviewed by Facility Review Group 1/30 1975

Approved by J.H. Barrow (for) Plant General Manager 2/3 1975

Revision 67 Reviewed by FRG 12/8 1995

Approved by J. Scarola Plant General Manager 12/8 1995

2.0 PURPOSE:

2.1 This procedure provides administrative guidance for the preparation, review, approval and revision of all plant procedures and letters of instruction, for use at the St. Lucie Plant.

2.2 This procedure defines the instructions that shall be used by St. Lucie Plant personnel to assure conformance with NRC Regulatory Guides 1.33 and 1.68, NUREG-0737 and the Site Quality Manual (SQM 2.1 and 5.0).

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ITM 67

5.0 INSTRUCTIONS: (continued)

5.12 (continued)

2. Controlled vendor technical manuals may be utilized as references to safety or non-safety related NPWOs to provide technical guidance (e.g., DWGs, specifications, torque values, dimensional information, voltage/current values, etc.) to supplement an invoked plant approved procedure/guideline or the work scope/instructions without prior FRG Review/Plant General Manager approval. In this case, the vendor's step-by-step maintenance instructions are not being used.

3. Changes to technical manuals received from the vendor or changes initiated by FPL shall be forwarded to PEG/JB for review and approval.

4. New technical manuals received from vendors shall be numbered and controlled in accordance with QI 6-PR/PSL-1.

5. The maintenance and preventive maintenance requirements specified in technical manuals shall be considered when writing maintenance procedures. Vendor recommendations for preventive maintenance activities or frequencies contained in these Vendor Tech. Manuals may be deviated from, provided a technical review is performed by the respective maintenance engineering group.

6. Distribution of revisions to vendor technical manuals shall be maintained by the Information Services Supervisor or designee.

5.13 Adherence to Procedures:

1. A strict adherence to procedural requirements - Verbatim Compliance - is the policy expected and required of all St. Lucie Plant personnel.

2. A procedure shall be performed in a step by step manner, with each step being completed prior to the performance of the next step, unless exceptions allowed by the procedure or as specified by this procedure.

   A. Procedures and Instructions of an Administrative nature (Quality Instructions, ADMs, etc.) shall not be violated, but step by step implementation is not required. By nature, these types of procedures and instructions often do not lead themselves to sequential implementation.

   B. Procedures and instructions that are of a technical nature shall be followed sequentially except as specifically allowed by approved plant procedures.

5.0 INSTRUCTIONS: (continued)

5.13 (continued)

2. (continued)

B. (continued)

1. Required sign-offs and data entries shall be made as each step is performed.

2. If a procedure step cannot be completed as written, or if in the judgement of the individual performing a procedure, completion of a specific step(s) could result in an unsafe condition (e.g., personnel injury, damage to equipment, conditions outside the limits of the procedure etc.), conduct of the procedure shall be stopped, the system/components placed in a safe condition and the Nuclear Plant Supervisor shall be notified.

3. Deviation from Procedure Valve Checklists may be made provided the deviation is noted in ink on the applicable valve alignment and is approved (initialed and dated) by the Nuclear Plant Supervisor.

3. Personnel shall not give directions, guidance, recommendation, or clarifications which conflict with approved procedures.

4. Adherence to procedures shall be accomplished by use of one of the following methods:

A. Method 1 - Procedure Present During Performance of Activity: The types of procedures that shall be present and referred to directly are:

1. Those procedures developed for extensive or complex jobs where reliance on memory cannot be trusted.

2. Tasks which are infrequently performed.

3. Tasks which must be performed in a specified sequence and/or which verification is documented by initial or signature.

5.0 INSTRUCTIONS: (continued)

5.13 (continued)

B. Method 2 - Memorization: Method by which the procedural steps for the required actions are committed to memory. This method does not permit any deviation from the Procedural Adherence Policy.

1. Procedures for which actions should be committed to memory are Immediate Actions in Emergency Operating Procedures and Off Normal Operating Procedures.

2. Procedures for which actions may be committed to memory are routine procedural actions that are frequently repeated and may not require the procedure to be present during performance of the activity. However, copies of procedures shall be available to the user at his/her work location for reference during performance of the task, if necessary.

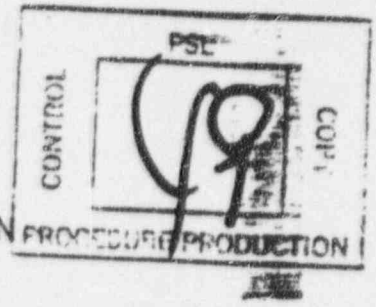
5. Procedural adherence may be accomplished by use of a Temporary Change, if necessary.

6. When used in a procedure the word "shall" is used to denote a requirement, the word "should" to denote a recommendation and the word "may" to denote permission, neither a requirement nor a recommendation.

7. Independent Verification:

A. Independent Verification has been defined in ADM-17.06, "Independent Verification." Definitions of Independent Verification should not be added to procedures as they may conflict with the guidance outlined in ADM-17.06.

FLORIDA POWER & LIGHT COMPANY
ST. LUCIE UNIT 1
OPERATING PROCEDURE NO. 1-0250020
REVISION 35



1.0 TITLE:

BORON CONCENTRATION CONTROL - NORMAL OPERATION

2.0 REVIEW AND APPROVAL:

Reviewed by Plant Nuclear Safety Committee 5/30 1974

Approved by K.N. Harris Plant General Manager 6/3 1974

Revision 35 Reviewed by Facility Review Group 8/10 & 8/17 1995

Approved by C. L. Burton Plant General Manager 8/17 1995

3.0 PURPOSE:

This procedure establishes a method of operation to supply makeup water to the Reactor Coolant System (RCS), Safety Injection System and Refueling Water Tank (RWT) at a desired boron concentration and provides instructions for the following modes of control:

3.1 BORATE

3.2 DILUTE

3.3 MANUAL

3.4 AUTOMATIC

3.5 Shutdown Cooling (SDC) Boron Concentration Control

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ST. LUCIE UNIT 1
OPERATING PROCEDURE NO. 1-0250020, REVISION 35
BORON CONCENTRATION CONTROL - NORMAL OPERATION

8.0 INSTRUCTIONS: (continued)

8.4 (continued)

3. Enter the number of gallons to be added into the PMW Batch Integrator and set desired flow rate on FRC-2210X (Makeup Water Flow).

4. Start one Primary Water Pump if not running.

5. Place V2512 in the OPEN position.

6. Place Mode Selector switch in DILUTE and observe flow indication of FRC-2210X.

7. Monitor VCT level to ensure tank does not fill up to high level alarm. For extended dilutions, match makeup flow with charging flow using the PMW makeup flow controller to prevent over-filling the VCT while diverting letdown.

8. Upon completion of dilution, return V2512 control switch to AUTO or CLOSED position.

9. Return Mode Selector Switch to AUTO or MANUAL.

10. Ensure that the desired reactivity change occurs.

8.5 Manual Mode of Operation

1. Determine the desired volume to be added to the VCT and calculate the proper blend ratio using the most recent chemistry boron samples of the 1A or 1B BAMT and the RCS. If the chemistry sample for the RCS is not available then use the boronometer reading.

ST. LUCIE UNIT 1
OPERATING PROCEDURE NO. 1-0250020, REVISION 35
BORON CONCENTRATION CONTROL - NORMAL OPERATION

8.0 INSTRUCTIONS: (continued)

8.5 (continued)

NOTE

The following formulas can be used to determine volume and blend ratio. Remember to make note of the current totalizer readings.

Volume to be added = desired VCT level % - actual VCT level % X 33.8 gal/%.

Blend ratio = BAMT Concentration divided by RCS Concentration minus one

$$\frac{\text{BAMT}}{\text{RCS}} - 1$$

2. Ensure Mode Select switch is selected to MANUAL.

3. Place FRC-2210Y and FRC-2210X to manual and close FCV-2210Y and FCV-2210X by taking the controller output to zero.

4. Ensure 1A or 1B primary water pump is running.

5. Ensure the BAM pump recirc valves V2510 and V2511 are open.

6. Start either the 1A or 1B BAM pump.

7. Open the Boric Acid Makeup isolation valve FCV-2161.

8. Ensure FCV-2210X, Reactor Makeup valve, selector switch is in AUTO.

9. Ensure FCV-2210Y, Boric Acid valve, selector is in AUTO.

10. If blending directly to the VCT, then open V2512, Reactor Makeup Water stop valve.

11. If direct path to the charging pump suction is desired, then open valve V2525, Boron Load Control Valve.

ST. LUCIE UNIT 1
OPERATING PROCEDURE NO. 1-0250020, REVISION 35
BORON CONCENTRATION CONTROL - NORMAL OPERATION

8.0 INSTRUCTIONS: (continued)

8.5 (continued)

> **CAUTION**
> To preclude lifting the VCT relief valve while using V2525, do not allow the combined PMW and boric acid flowrates to exceed the running charging pump(s) capacity.

12. Adjust FRC-2210X and FRC-2210Y to the desired flow rates.

> **NOTE**
> Monitor VCT level for increase.

> **NOTE**
> The addition of Boric Acid should be completed before the PMW, such that, the total blend volume remaining allows for at least 30 gallons of primary makeup water alone, to flow through the lines and flush out any remaining boric acid.

13. When the desired amount of Boric Acid has been added, place the selector switch for FCV-2210Y to CLOSE.

14. When the Boric Acid and water flow totalizers show that the proper amounts have been added to the VCT, then close V2512 or V2525, which ever was used.

15. Place the running BAM pump switch to AUTO and ensure pump stops.

16. Close FCV-2161.

17. Close FCV-2210X.

18. Monitor for any abnormal change in temperature. Check Boronometer for undesirable change in Boron Concentration.

FIGURE 4
TEMPORARY CHANGE REQUEST
(Page 1 of 3)

A Reference Information: (**Originator** to complete)

St. Lucie Unit # PSL 1 TC # 1-96-017

Procedure Title: BORON CONCENTRATION CONTROL - NORMAL OPERATION

Procedure Number: OP 1-0250020 Rev. 35

Reason for change: ADD PROCEDURAL GUIDANCE FOR CVCS OPERATION, MANUAL DILUTION AND BORATION OF THE RCS. THIS INFORMATION IS IN THE SAME FORMAT IN OP 2-0250020, REV 23.

Originator: R. RENNEKAMP Phone: X 7059 Date: JAN / 23 / 1996

B Procedural Controls: (**Originator** to complete)

Yes	No	
☐	☒	Is the intent of the procedure changed? (Tech. Spec. 6.8.3.A) If yes, a TC is NOT applicable. A PCR is required.
☐	☒	Is this Temporary Change for a one-time use? If yes, this TC can be executed one time only. If no, this TC may be used up to 90 days, and the originator of the TC shall submit a procedure change request incorporating this TC at the same time the TC is approved.

Department Head or Designee [signature] for C.H. Ward 1/23/96

☐	☒	Is this T.C. for a Q.I.? If yes, the Quality Manager or designee and the Dept. Head or designee who is jurisdictionally responsible for the Q.I. shall sign.

Quality Manager or Designee _____ ___/___/___

Department Head or Designee _____ ___/___/___

C Temporary Change Contents: (**Originator** to complete)

Does this Change:

Yes	No		
☐	☒	Incorporate complex or extensive changes? If Yes, Subcommittee required.	Subcommittee Initials: _____
☐	☒	Modify instrument setpoints?	
☐	☒	Delete an independent verification?	
☐	☒	Alter a QC holdpoint?	
☐	☒	Modify a procedural step which alters a regulatory requirement as identified in the procedure?	
☐	☒	Alter the first execution of a procedure? (Preop, LOI)	
☐	☒	Addition of any chemicals?	

NOTE
If any of the above criteria are marked yes, prior FRG review is required.

/R

FIGURE 4
TEMPORARY CHANGE REQUEST
(Page 2 of 3)

TC # 1-96-017

D

10 CFR 50.59 Screening

		Yes	No
1.	Does the change represent a change to the facility as described in the SAR?	___	X
2.	Does the change represent a change to procedures as described in the SAR?	___	X
3.	Is the change associated with a test or experiment not described in the SAR?	___	X
4.	Could the change affect nuclear safety in a way not previously evaluated in the SAR?	___	X
5.	Does the change require a change to the Technical Specifications?	___	X

NOTE
If the answer to ALL the above 10 CFR 50.59 screening questions are no, (Questions 1 - 5), then a safety evaluation is not required.

STA review (signature) _____ Date 1/23/96

E

Does this change: (NPS to complete)

		Yes	No
1.	Compromise the separation of redundant trains of equipment?	___	X
2.	Potentially isolate pressure relief?	___	X
3.	Defeat automatic signals?	___	X
4.	Defeat mechanical or electrical interlocks?	___	X
5.	Alter the completion of an evolution due to an operator work around.	___	X

If yes to No. 5, authorization from the Plant General Manager or Site Vice President shall be obtained.

_____ Date ___/___/___

Yes	No	
☐	☒	Prior FRG review required?

NOTE
If any of the above criteria are marked yes, discuss possible alternatives with the originator.

NPS Signature _____ Date 1/23/96

F

FRG Review:

Plant General Manager Approval _____ Date ___/___/___

FRG Number _____-_____

This change shall be reviewed (if prior FRG review is not required) by the Facility Review Group and approved by the Plant General Manager within 14 days of the authorization date. (Tech. Spec. 6.8.3.C)

REJECTED by FRG/Plant General Manager _____ Date ___/___/___

Reason: _____

Return to Originator _____

It is the responsibility of the originator of the rejected temporary change to cancel the change in the appropriate Control Room, destroy all field copies and halt all subsequent evolutions using this temporary change.

FIGURE 4
TEMPORARY CHANGE REQUEST
(Page 3 of 3)

G

TC # 1-96-017

Approval: (This change shall have prior approval by a NPS and one member of the plant management staff.) (Tech. Spec. 6.8.3.B)

Plant Management Staff Signature ______ Date 1/23/96

NPS Signature ______ Authorization Date 1/23/96

H

Cancellation Authorization ______ (NPS/ANPS) Date __/__/__

Reason: ______

ST. LUCIE UNIT 1
OPERATING PROCEDURE NO. 1-0250020, REVISION 35
BORON CONCENTRATION CONTROL - NORMAL OPERATION

8.0 INSTRUCTIONS: (continued)

8.4 (continued)

3. Enter the number of gallons to be added into the PMW Batch Integrator and set desired flow rate on FRC-2210X (Makeup Water Flow).

4. Start one Primary Water Pump if not running.

5. Place V2512 in the OPEN position.

6. Place Mode Selector switch in DILUTE and observe flow indication of FRC-2210X.

7. Monitor VCT level to ensure tank does not fill up to high level alarm. For extended dilutions, match makeup flow with charging flow using the PMW makeup flow controller to prevent over-filling the VCT while diverting letdown.

8. Upon completion of dilution, return V2512 control switch to AUTO or CLOSED position.

9. Return Mode Selector Switch to AUTO or MANUAL.

10. Ensure that the desired reactivity change occurs.

8.5 Manual Mode of Operation

1. Manual Blend

A. Determine the desired volume to be added to the VCT and calculate the proper blend ratio using the most recent chemistry boron samples of the 1A or 1B BAMT and the RCS. If the chemistry sample for the RCS is not available then use the boronometer reading.

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ST. LUCIE UNIT 1
OPERATING PROCEDURE NO. 1-0250020, REVISION 35
BORON CONCENTRATION CONTROL - NORMAL OPERATION

8.0 INSTRUCTIONS: (continued)

8.5 (continued)

NOTE

The following formulas can be used to determine volume and blend ratio. Remember to make note of the current totalizer readings.

Volume to be added = desired VCT level % - actual VCT level % X 33.8 gal/%.

Blend ratio = BAMT Concentration divided by RCS Concentration minus one

$$\frac{\text{BAMT}}{\text{RCS}} - 1$$

B. Ensure Mode Select switch is selected to MANUAL.

C. Place FRC-2210Y and FRC-2210X to manual and close FCV-2210Y and FCV-2210X by taking the controller output to zero.

D. Ensure 1A or 1B primary water pump is running.

E. Ensure the BAM pump recirc valves V2510 and V2511 are open.

F. Start either the 1A or 1B BAM pump.

G. Open the Boric Acid Makeup isolation valve FCV-2161.

H. Ensure FCV-2210X, Reactor Makeup valve, selector switch is in AUTO.

I. Ensure FCV-2210Y, Boric Acid valve, selector is in AUTO.

J. If blending directly to the VCT, then open V2512, Reactor Makeup Water stop valve.

K. If direct path to the charging pump suction is desired, then open valve V2525, Boron Load Control Valve.

Add new section 8.5.2 of 853 per attached sheets

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ST. LUCIE UNIT 1
OPERATING PROCEDURE NO. 1-0250020, REVISION 35
BORON CONCENTRATION CONTROL - NORMAL OPERATION

8.0 INSTRUCTIONS: (continued)

8.5 (continued)

CAUTION
To preclude lifting the VCT relief valve while using V2525, do not allow the combined PMW and boric acid flowrates to exceed the running charging pump(s) capacity.

IC 1-30-017

L. (12) Adjust FRC-2210X and FRC-2210Y to the desired flow rates.

NOTE
Monitor VCT level for increase.

NOTE
The addition of Boric Acid should be completed before the PMW, such that, the total blend volume remaining allows for at least 30 gallons of primary makeup water alone, to flow through the lines and flush out any remaining boric acid.

IC 1-96-017

M. (13) When the desired amount of Boric Acid has been added, Then place the selector switch for FCV-2210Y to CLOSE.

N. (14) When the Boric Acid and water flow totalizers show that the proper amounts have been added to the VCT, then close V2512 or V2525, which ever was used.

O. (15) Stop the running BAM pump and Place the running BAM pump switch to AUTO, and ensure pump stops.

P. (16) Close FCV-2161.

Q. (17) Close FCV-2210X.

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R. (18) Monitor for any abnormal change in temperature. Check Boronometer for undesirable change in Boron Concentration.

Add new section 8.5.2 and 8.5.3 per attached sheets

8.0 INSTRUCTIONS: (continued)

8.5 (continued)

2. Manual Dilution

NOTE
VCT level equates to 33.8 gallons per percent of scale on LIC-2226, VCT Level.

A. Determine the desired volume of water to be added.

B. Ensure the Make-up Mode Selector switch is selected to MANUAL.

C. Ensure that FRC-2210X, Make-up Water Flow, is in MANUAL and reduce the controller output to zero (0).

D. Ensure that FRC-2210Y, Boric Acid Flow, is in MANUAL. and reduce the controller output to zero (0).

E. Ensure that FCV-2210Y, Boric Acid Valve, selector is in CLOSE.

F. Ensure that either the 1A or the 1B Primary Make-up Water Pump is running.

G. Place FCV-2210X, Reactor Make-up, selector switch in AUTO.

H. If diluting to the VCT, Then OPEN V2512, Reactor Make-up Water Stop Vlv.

I. If diluting directly to the suction of the charging pumps, Then OPEN V2525, Boron Load Control Valve.

TC 1-96-017

8.0 INSTRUCTIONS: (continued)

8.5 (continued)

2. (continued)

CAUTION
To preclude lifting the VCT relief valve while using V2525, do NOT allow the PMW flowrate to exceed the running charging pump flow rate.

J. Adjust FRC-2210X to the desired flowrate.

K. If necessary to maintain the desired VCT level, Then divert the letdown flow to the WMS by placing V2500, VCT Divert Valve, in the WMS position.

L. When the desired VCT level is reached, Then:

1. Return V2500, VCT Divert Valve, to the AUTO position.

2. Ensure that V2500 indicates CLOSED.

M. When the desired amount of PMW has been added, Then place the FCV-2210X selector switch in the CLOSE position.

N. CLOSE V2512 or V2525, whichever was used.

O. Ensure that FRC-2210X is in MANUAL and reduce the controller output to zero (0).

P. Monitor for unexpected results:

1. Abnormal change in the RCS temperature.

2. Undesired change in the RCS boron concentration by boronmeter indication.

TC #1-96-017

8.0 INSTRUCTIONS: (continued)

8.5 (continued)

3. Manual Boration

NOTE
VCT level equates to 33.8 gallons per percent of scale on LIC-2226, VCT Level.

A. Determine the desired volume of boric acid to be added.

B. Ensure the Make-up Mode Selector switch is selected to MANUAL.

C. Ensure that FRC-2210X, Make-up Water Flow, is in MANUAL and reduce the controller output to zero (0).

D. Ensure that FRC-2210Y, Boric Acid Flow, is in MANUAL and reduce the controller output to zero (0).

E. Ensure that FCV-2210Y, Boric Acid Valve, selector is in CLOSE.

F. Ensure that either the 1A or the 1B Primary Make-up Water Pump is running.

NOTE
While it is acceptable to use either BAMT for RCS boration, it is preferable to operate the BAM Pump for the BAMT NOT designated as 'Tech Spec'.

G. START either the 1A or the 1B BAM Pump.

H. Place FCV-2210Y, Boric Acid Valve, selector switch in AUTO.

I. OPEN FCV-2161, Boric Acid Make-up Isolation.

J. If borating directly to the VCT, Then OPEN V2512, Reactor Make-up Water Stop Vlv.

TC # 1-96-017

8.0 INSTRUCTIONS: (continued)

8.5 (continued)

3. (continued)

K. If borating directly to the suction of the charging pumps, Then OPEN V2525, Boron Load Control Valve.

L. Adjust FRC-2210Y to the desired flowrate.

M. If necessary to maintain the desired VCT level, Then divert the letdown flow to the WMS by placing V2500, VCT Divert Valve, in the WMS position.

N. When the desired VCT level is reached, Then:

1. Return V2500, VCT Divert Valve, to the AUTO position.

2. Ensure that V2500 indicates CLOSED.

O. When the desired amount of boric acid has been added, Then place the FCV-2210Y selector switch in the CLOSE position.

P. CLOSE FCV-2161, Boric Acid Make-up Isolation.

CAUTION
To preclude lifting the VCT relief valve while using V2525, do NOT allow the PMW flowrate to exceed the running charging pump flow rate.

Q. STOP the running BAM pump and place the selector switch in the AUTO position.

TC # 1-96-0017

8.0 INSTRUCTIONS: (continued)

8.5 (continued)

3. (continued)

R. If flushing the CVCS piping following boration is desired, Then:

1. Place FRC-2210X, Make-up Water Flow, controller in AUTO.

CAUTION
To preclude lifting the VCT relief valve while using V2525, do NOT allow the PMW flowrate to exceed the running charging pump flow rate.

2. Adjust FRC-2210X to the desired flowrate to flush the lines with a total of at least 30 gallons of PMW.

3. When the desired amount of PMW has been added, Then place the FCV-2210X selector switch in the CLOSE position.

4. Place FRC-2210X in MANUAL and reduce the controller output to zero (0).

S. CLOSE V2512 or V2525, whichever was used.

T. Ensure that FRC-2210Y, Boric Acid Flow, is in MANUAL and reduce the controller output to zero (0).

U. Monitor for unexpected results:

1. Abnormal change in the RCS temperature.

2. Undesired change in the RCS boron concentration by boronmeter indication.

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